

IN THE SPECIFICATION:

Please amend the specification as follows:

Please replace paragraph starting on page 4, lines 24 and continuing on page 5, lines 1-10, with the following amended paragraph:

~~Figure 3~~ Figures 3A and 3B present ~~presents~~ the entire nucleotide sequence of construct NMDAR1A (see Sequence ID No. 1) with the following information added for ease of comparison of the splice variations of the NMDAR1 subunit transcript: lowercase letters indicate 5' untranslated sequence and the 3' untranslated sequence of the NMDAR1 splice variant shown in Sequence ID No. 1 (in some of the other splice variants, this 3' untranslated sequence is actually coding sequence); uppercase letters indicate coding sequence; the translation initiation codon is identified by the word "START" whereas the three different translation termination codons (TGA) used in the different splice variants are identified by small boxes; significant restriction enzyme sites used in preparing full-length variant constructs are identified by name above the sites; the location of a 63-bp insertion (see Sequence ID No. 3) that exists in some of the variants is marked as "63 bp INSERT"; the nucleotide sequences that are deleted from some of the variants are boxed and labeled as "204 bp DELETION," "363 bp DELETION," and "1087 bp DELETION."

Please replace paragraph starting on page 8, lines 33-35 and continuing on page 9, lines 1-4, with the following amended paragraph:

Exemplary DNA sequences encoding human NMDAR1 subunits are represented by nucleotides which encode substantially the same amino acid sequence as set forth in Sequence ID Nos. ~~2, 2E, 2F, 2G, 2H, 2I, 2J, 2K, 2L, 2M, 2N, or 2P~~ 2, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38 or 40. Presently preferred sequences encode substantially the same amino acid sequence as set forth in Sequence ID Nos. ~~2, 2E, 2F, 2G, 2H, 2I or~~ 2, 20, 22, 24, 26, 28 or 40.

Please replace paragraph on page 9, lines 5-15, with the following amended paragraph:

Exemplary DNA can alternatively be characterized as those nucleotide sequences which encode a human NMDAR1 subunit and hybridize under high stringency conditions to substantially the entire sequence of any one of Sequence ID Nos. ~~1, 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1N, or 1P~~ No. 1, nucleotides 320-3402 of Sequence ID No. 1, or Sequence ID Nos. 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37 or 39, or substantial portions thereof (i.e., typically at least 25-30 nucleotides thereof); preferably exemplary DNA will hybridize under high stringency conditions to substantially the entire sequence of any one of

Sequence ID Nos. ~~1, 1E, 1F, 1G, 1H, 1I or 1P~~ 19, 21, 23, 25, 27 or 39, or substantial portions thereof.

Please replace paragraph on page 11, lines 20-26, with the following amended paragraph:

Especially preferred sequences are those which have substantially the same nucleotide sequence as the coding sequences in any one of Sequence ID Nos. ~~1, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 1N, or 1P~~ 19, 21, 23, 25, 27, 29, 31, 35, 37 or 39; with those having substantially the same sequence as the coding sequence in Sequence ID Nos. ~~1, 1E, 1F, 1G, 1H, 1I or 1P~~ 19, 21, 23, 25, 27 or 39 being most preferred.

Please replace paragraph on page 14, lines 20-26 and paragraph starting lines 28-31, with the following amended paragraph:

Exemplary DNA sequences encoding human NMDAR2B subunits are represented by nucleotides which encode substantially the same amino acid sequence as set forth in ~~Sequence ID No. 14~~ Sequence ID No. 56. Exemplary DNAs can alternatively be characterized as those nucleotide sequences which encode a human NMDAR2B subunit and hybridize under high stringency conditions to substantially the entire sequence of ~~Sequence ID No. 13~~ Sequence ID No. 55, or substantial portions thereof (i.e., typically at least 25-30 nucleotides thereof). Especially preferred NMDAR2B-encoding sequences are those which have substantially the same nucleotide sequence as the coding sequence in ~~Sequence ID No. 13~~ Sequence ID No. 55.

Exemplary DNA sequences encoding human NMDAR2C subunits are represented by nucleotides which encode substantially the same amino acid sequence as set forth in Sequence ID Nos. ~~6, 6E, 6F, 6G, 6H or 6I~~ 46, 48, 50, 52 or 54.

Please replace paragraph starting on page 14, lines 32 - 33 through page 15, lines 1-8, with the following amended paragraph:

Exemplary DNAs can alternatively be characterized as those nucleotide sequences which encode a human NMDAR2C subunit and hybridize under high stringency conditions to substantially the entire sequence of any one of Sequence ID Nos. ~~5, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, or 5I~~ 41, 43 or 44 or nucleotides 1-3025 of Sequence ID No. 5 or Sequence ID Nos. 45, 47, 49, 51 or 53, or substantial portions thereof (i.e., typically at least 25-30 nucleotides thereof); preferably exemplary DNA will hybridize under high stringency conditions to substantially the entire sequence of any one of Sequence ID Nos. ~~5, 5E, 5F, or 5G~~ 45, 47 or 49, or substantial portions thereof.

Please replace paragraph on page 15, lines 9-14, with the following amended paragraph:

Especially preferred NMDAR2C-encoding sequences are those which have substantially the same nucleotide sequence as the coding sequences in any one of Sequence ID Nos. ~~5, 5E, 5F, 5G, 5H or 5I~~ 45, 47, 49, 51 or 53; with those having substantially the same sequence as the coding sequences in Sequence ID Nos. ~~5, 5E, 5F, or 5G~~ 45, 47 or 49 being most preferred.

Please replace paragraph starting on Page 15, lines 15-26, with the following amended paragraph:

Exemplary DNA sequences encoding human NMDAR2D subunits are represented by nucleotides which encode substantially the same amino acid sequence as set forth in ~~Sequence ID No. 16~~ Sequence ID No. 58. Exemplary DNAs can alternatively be characterized as those nucleotide sequences which encode a human NMDAR2D subunit and hybridize under high stringency conditions to substantially the entire sequence of ~~Sequence ID No. 15~~ Sequence ID No. 57, or substantial portions thereof (i.e., typically at least 25-30 nucleotides thereof). Especially preferred NMDAR2D-encoding sequences are those which have substantially the same nucleotide sequence as the coding sequence in ~~Sequence ID No. 15~~ Sequence ID No. 57.

Please replace paragraph starting on page 15, lines 27-34 and continuing on page 16, lines 1- 3, with the following amended paragraph:

DNA encoding human NMDA receptor subunits may be isolated by screening suitable human cDNA or human genomic libraries under suitable hybridization conditions with DNA disclosed herein (including nucleotides derived from any of ~~SEQ ID Nos. 1, 1A-1P, 5, 5A-5I, 10, 13 or 15~~ Sequence ID No. 1, nucleotides 320-3402 of Sequence ID No. 1, Sequence ID Nos. 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 5, 41, 43 or 44, nucleotides 1-3025 of Sequence ID No. 5 or Sequence ID Nos. 45, 47, 49, 51, 53, 10, 55 or 57). Suitable libraries can be prepared from neuronal tissue samples, e.g., hippocampus and cerebellum tissue, cell lines, and the like. For example, the library can be screened with a portion of DNA including substantially the entire subunit-encoding sequence thereof, or the library may be screened with a suitable probe.

Please replace paragraph starting on Page 16, lines 4-13, with the following amended paragraph:

As used herein, a probe is single-stranded DNA or RNA that has a sequence of nucleotides that includes at least 14 contiguous bases that are the same as (or the complement of)

any 14 or more contiguous bases set forth in any of SEQ ID Nos. ~~1, 1A-1P, 5, 5A-5I, 10, 13 or 15~~ Sequence ID No. 1, nucleotides 320-3402 of Sequence ID No. 1, Sequence ID Nos. 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 5, 41, 43 or 44, nucleotides 1-3025 of Sequence ID No. 5 or Sequence ID Nos. 45, 47, 49, 51, 53, 10, 55 or 57. Preferred regions from which to construct probes include 5' and/or 3' coding sequences, sequences predicted to encode transmembrane domains, sequences predicted to encode cytoplasmic loops, signal sequences, NMDA binding sites, and the like.

Please replace paragraph on page 37, 6-17, with the following amended paragraph:

The clones were plaque purified and characterized by restriction enzyme mapping and DNA sequence analysis of the inserts. One of the clones, NMDA11 (~~see Sequence ID No. 1B for a description of a portion of NMDA11~~ (see description of Sequence ID No. 13 in Summary of Sequences for a description of a portion of NMDA11)), is a full-length cDNA (i.e., it contains translation initiation and termination codons) encoding a complete NMDAR1 subunit. The remaining clones are partial cDNAs. Clones NMDA2, NMDA3 (~~see Sequence ID No. 1D~~ Sequence ID No. 17), NMDA5, NMDA6, NMDA7 (~~see Sequence ID No. 1C~~ Sequence ID No. 15), and NMDA10 (~~see Sequence ID No. 1A for a description of a portion of NMDA10 which encodes a 3083 nucleotide sequence comprising nucleotides 320-3402 of Sequence ID No. 1~~) contain a translation termination codon but lack nucleotides at the 5' end of the coding sequence.

Please replace paragraph starting on page 41, lines 4-17, with the following amended paragraph:

Full-length construct NMDAR1- $\Delta$ 363 was prepared by ligation of a 5' portion of NMDA11 (beginning 5' of the translation initiation codon and extending to the *Hind*III site in the middle of the clone, i.e., nucleotides 1-2136 in Sequence ID No. 1) and a 3' portion of NMDA11 (beginning at the *Hind*III site in the middle of the clone and extending 3' of the translation termination codon, i.e., nucleotides 2137-2961 and 3325-4298 of Sequence ID No. 1). As described above, due to the difficulty in directly subcloning the entire 4.0 kb *Sna*BI NMDA11 insert into pcDNA1, it was necessary to generate the construct by ligating two fragments of the NMDA11 insert into pcDNA1 as follows (see ~~Figure 3~~ Figures #a and 3B for locations of restriction enzyme sites).

Please replace paragraph starting on page 42, lines 19-31, with the following amended paragraph:

Full-length construct NMDAR1- $\Delta$ 1087 was prepared by replacing the 3' end of the NMDAR1 variant-encoding insert of NMDAR1- $\Delta$ 363 with a fragment from the 3' end of

clone NMDA3 (see Figure 2). Plasmid NMDAR1-Δ363 was partially digested with *Pst*I and completely digested with *Xba*I. There is a *Pst*I site ~112 nucleotides upstream of the location of the 363-nucleotide deletion in NMDAR1-Δ363 and an *Xba*I site in the polylinker located downstream of the 3' untranslated sequence of NMDAR1-Δ363 (see Figure 3 3A and 3B). Thus, *Pst*I/*Xba*I digestion of NMDAR1-Δ363 results in removal of a fragment containing nucleotides 2850-2961 and 3325-4298 of Sequence ID No. 1 from the vector. The larger fragment was isolated from the digest.

Please replace paragraph starting on page 43, lines 21-31, with the following amended paragraph:

Full-length construct NMDAR1-I63-Δ204 was prepared by replacing a 1399-nucleotide fragment of construct NMDAR1A (i.e., nucleotides 738-2136 of Sequence ID No. 1) with the *Pvu*II-*Hind*III fragment of NMDA7 (i.e., nucleotides 738-831 of sequence ID No. 1, plus nucleotides 1-63 of Sequence ID No. 3 and nucleotides 832-984 and 1189-2136 of Sequence ID No. 1), as depicted in Figure 2. Because there are multiple *Pvu*II sites in the NMDAR1 construct, a several-step process was required for construction of NMDAR1-I63-Δ204 as follows (see Figure 3 3A and 3B for the location of restriction enzyme sites).

Please replace paragraph starting on page 47, lines 2-14, with the following amended paragraph:

Full-length construct NMDAR1-I63-Δ204-Δ1087 was prepared by replacing the 2861 nucleotide fragment from construct NMDAR1-I63-Δ204 (i.e., nucleotides 1438-4298 ~~Sequence ID No. 1~~ Sequence ID No. 1) with the KpnI-*Xba*I (polylinker site) fragment of NMDAR1-Δ1087 (i.e., nucleotides 1438-2961 and 4049-4298 of Sequence ID No. 1) as depicted in Figure 2. The NMDAR1-I63-Δ204 was completely digested with *Xba*I then partially digested with KpnI due to the presence of two additional KpnI sites in the vector sequence. The resulting 5' NMDAR1-I63-Δ204 fragment, which includes the pcDNA1 vector sequences, was ligated with the 3' KpnI-*Xba*I fragment from NMDAR1-Δ1087 to generate NMDAR1-I63-Δ204-Δ1087.

Please replace lines 11-15, page 48 with the following amended text:

NMDAR1-Δ204	( <del>Sequence ID No. 1J</del> <u>Sequence ID No. 29</u> )
NMDAR1-Δ204-Δ363	( <del>Sequence ID No. 1K</del> <u>Sequence ID No. 31</u> )
NMDAR1-I63-Δ363	( <del>Sequence ID No. 1M</del> <u>Sequence ID No. 35</u> )
NMDAR1-I63-Δ1087	( <del>Sequence ID No. 1N</del> <u>Sequence ID No. 37</u> )
NMDAR1-Δ204-Δ1087	( <del>Sequence ID No. 1L</del> <u>Sequence ID No. 33</u> )

Please replace paragraph starting on page 50 lines 28 -34 and continuing on page 51, lines 1-10, with the following amended paragraph:

Clones NMDA26, NMDA24, NMDA22 and NMDA21 (see Figure 4) represent four basic clones that were identified, all of which are believed to be splice variants. Clone NMDA26 (~~Sequence ID No. 5D~~ nucleotides 1-3025 of Sequence ID No. 5) is used as a reference to which the other variants can be compared. Clone NMDA24 (~~Sequence ID No. 5C~~ Sequence ID No. 44) contains a 24-bp sequence (see Sequence ID No. 7) that is not present in NMDA26. Clone NMDA22 (~~Sequence ID No. 5B~~ Sequence ID No. 43) lacks 15 bp that are present in NMDA26, and clone NMDA21 (~~Sequence ID No. 5A~~ Sequence ID No. 41) lacks 51 bp that are present in NMDA26. Clones NMDA22 and NMDA24 both contain an 11-bp sequence (Sequence ID No. 9) that is not present in NMDA26 (between nucleotides 1116-1117 of Sequence ID No. 5). Introduction of this sequence into these clones (between nucleotides 1116-1117 of Sequence ID No. 5) disrupts the reading frame of the transcript and introduces a premature translation termination (i.e., STOP) codon into the transcript.

Please replace paragraphs on page 53, lines 14-17, 18-20, 21-24 and 25-30, with the following amended paragraph:

Construct pCMV-26-ScaI-24 (~~Sequence ID No. 5E~~ Sequence ID No. 45) is identical to pCMV-26-NotI-24, except it contains 24-base pairs (Sequence ID No. 7) inserted between nucleotides 2350 and 2351 of Sequence ID No. 5.

Construct pCMV-26-ScaI-22 (~~Sequence ID No. 5F~~ Sequence ID No. 47) is identical to pCMV-26-NotI-24, except that it lacks 15-base pairs (nucleotides 1960-1974 of Sequence ID No. 5).

Construct pCMV-26-ScaI-21-NotI-24 (~~Sequence ID No. 5G~~ Sequence ID No. 49) is identical to pCMV-26-NotI-24, except that it lacks 51-base pairs (nucleotides 2351-2401 of Sequence ID No. 5).

Construct NMDAR2C-Δ15-Δ24 (~~Sequence ID No. 5H~~ Sequence ID No. 51) is identical to pCMV-26-NotI-24, except that it lacks 15-base pairs (i.e., nucleotides 1960-1974 of Sequence ID No. 5) and includes a 24-base pair sequence (i.e., Sequence ID No. 7; inserted between nucleotides 2350 and 2351 of Sequence ID No. 5).

Please replace paragraphs on page 54, lines 1-5, with the following amended paragraphs:

Construct NMDAR2C-Δ15-Δ51 (~~Sequence ID No. 5I~~ Sequence ID No. 53) is identical to pCMV-26-NotI-24, except that it lacks 15-base pairs (i.e., nucleotides 1960-1974 of Sequence ID No. 5) and 51-base pairs (i.e., nucleotides 2351-2401 of Sequence ID No. 5).

Please replace paragraph starting on pages 54, lines 17-34 and continuing on page 55, lines 1-11, with the following amended paragraph:

Human NMDAR2C has 83.5% GC nucleotide content between nucleotides 2957 and 3166. To potentially enhance NMDAR2D subunit expression, the GC content in this region can be reduced while maintaining the native amino acid sequence. Synthetic DNAs can be made by oligonucleotide primer extension across this region. Four oligonucleotides, SE343 (~~Sequence ID No. 17~~ Sequence ID No. 59), SE344 (~~Sequence ID No. 18~~ Sequence ID No. 60), SE345 (~~Sequence ID No. 19~~ Sequence ID No. 61), and SE346 (~~Sequence ID No. 20~~ Sequence ID No. 62) were synthesized. These primers maintain the amino acid sequence of the human NMDAR2D receptor and some restriction sites, but lower the overall GC content of this region to 53.4%. The criteria for the modification of bases were: 1) to not have more than 4 guanine nucleotides in a row if at all possible, 2) to maintain the restriction cutting sites for *NotI* (nucleotides 2962 - 2969 of Sequence ID No. 5), *AvaII* (nucleotides 3069 - 3073 Sequence ID No. 5), and *AatII* (nucleotides 3156 - 3161 of Sequence ID No. 5), 3) to reduce the secondary structure of the oligonucleotides as much as possible, 4) to not introduce any additional *NotI*, *AvaII* or *AatII* restriction sites into the sequence and 5) to have the base pair overlap between oligonucleotide pairs, {SE343 and SE344} or {SE345 and SE346} have a proposed melting temperature between 62-66°C. The oligonucleotide pair SE343 and SE344 has complementary sequence from nucleotides 51 - 71 of Sequence ID Nos. 17 and 18. The oligonucleotide pair SE345 and SE346 have complementary sequence from nucleotides 42 - 61 of Sequence ID No. 19 and nucleotides 43 - 62 of ~~Sequence ID No. 20~~ Sequence ID No. 62, respectively.

Please replace paragraph starting on pages 55, lines 20-31 with the following amended paragraph:

The resulting 121 bp PCR product from the primer pair SE343-SE344 is digested with *NotI* and *AvaI*, and the resulting 103 bp PCR product from the primer pair SE345-SE346 is digested with *AvaI* and *AatII*. These fragments are ligated into pCMV-NMDAR2C-26-*NotI*-24, which has been partially digested with both *NotI* and *AatII* due to the presence of additional *NotI* and/or *AatII* restriction sites in the vector sequence, to form pCMV-26-*NotI*-24-GCMOD. This construct, pCMV-26-*NotI*-24-GCMOD, contains nucleotides 140-2965 of Sequence ID No. 5, followed by the 195 nucleotides set forth in ~~Sequence ID No. 21~~ Sequence ID No. 63, and then nucleotides 3161 to 4340 of Sequence ID. No. 5.

Please replace paragraph on page 60, lines 17-27, with the following amended paragraph:

NMDA81 was digested with *EcoRI/EcoRV* and the ~5.5-kbp fragment was isolated and ligated to *EcoRI/EcoRV*-digested pCMV-T7-3. The resulting construct, pCMVPL3-hNMDAR2B, contains the NMDAR2B coding sequence (nucleotides 210-4664 of

~~Sequence ID No. 13~~ Sequence ID No. 55), as well as 209 nucleotides of 5' untranslated sequence (nucleotides 1-209 of ~~Sequence ID No. 13~~ Sequence ID No. 55) and 339 nucleotides of 3' untranslated sequence (nucleotides 4665-5003 of ~~Sequence ID No. 13~~ Sequence ID No. 55). The NMDAR2B-encoding DNA in this construct is operatively linked to regulatory elements in pCMV-T7-3 for expression in mammalian host cells.

Please replace paragraph on page 61, lines 21-30, with the following amended paragraph:

Eighteen of the plaques that hybridized weakly to pcrNMDAR2A in the initial low stringency screening of the library hybridized only weakly or not at all to portions of DNA encoding human NMDAR2A, NMDAR2B and NMDAR2C subunits in the high stringency screening. The plaques were purified, and the insert fragments were characterized by DNA sequence analysis. One of the inserts, NMDA96, corresponds to the 3' half of the human NMDAR2D subunit gene coding sequence. The sequence of this clone is provided in ~~Sequence ID No. 15~~ Sequence ID No. 57.

Please replace paragraphs on page 62, lines 10-16; lines 17-24 and lines 31033, with the following amended paragraph:

A human cDNA library was prepared using a specific oligonucleotide, SE296, to prime cDNA synthesis from RNA isolated from human fetal brain. The specific primer used for first-strand synthesis was SE296 (nucleotides 2920-2949 of ~~Sequence ID No. 15~~ Sequence ID No. 57). cDNAs synthesized by specific priming that were greater than 2.2 kb in size were isolated and inserted into the  $\lambda$ ZAPII phage vector to generate the library.

The specifically primed library ( $1 \times 10^6$  recombinants) was screened for hybridization to the 831 bp *Sma*I fragment from NMDAR2D (nucleotides 2435-3265 of ~~Sequence ID No. 15~~ Sequence ID No. 57) in 5X SSPE, 5X Denhart's solution, 50% deionized formamide, 0.2% SDS, 200  $\mu$ g/ml sonicated, denatured herring sperm DNA at 42°C. Washes were performed in 0.1X SSPE, 0.2% SDS at 65°C. One probe hybridized to 11 plaques.

The sequences of these clones overlap with NMDA96 to constitute 100% of the human NMDAR2D subunit coding sequence (see nucleotides 485-4495 of ~~Sequence ID No. 15~~ Sequence ID No. 57).

Please replace paragraph on page 63, lines 1-22, with the following amended paragraph:

The full-length hNMDAR2D construct was prepared using NMDA115 and NMDA96 cDNAs. NMDA115 and NMDA96 cDNAs are already in the pBlueScript vector; however, the NMDA115 cDNA is in the sense orientation from the T7 promoter, while the



NMDA96 cDNA is in the antisense orientation. For ease of subcloning the full-length construct, the NMDA96 cDNA was cloned into the sense orientation by digesting NMDA96 with *EcoRI* and screening the resulting clones for orientation (NMDAR96-T7). Within the complete human NMDAR2D sequence, there is a unique *HindIII* at nucleotides 2804 that was used to clone NMDA115 together with NMDA96. However, there is an additional *HindIII* site in the pBS polylinker at the 5' end of the NMDA115 cDNA. Therefore NMDA115 was fully digested with *SpeI*, a 3' polylinker site, and partially digested with *HindIII*. The resulting ~5.6 kb *SpeI-HindIII* fragment from pNMDA115 (pBS vector plus nucleotides 397-2804 of ~~Sequence ID No. 15~~ Sequence ID No. 57) was ligated with the 1.7 kb *HindIII-SpeI* fragment (nucleotides 2805-4651 of ~~Sequence ID No. 15~~ Sequence ID No. 57) from NMDA96-T7 to form pBS-hNMDAR2D. *In vitro* transcripts were prepared for co-injection into *Xenopus* oocytes to test for alteration of NMDAR1A currents.

Please replace paragraph starting on page 63, lines 28-34, and continuing on page 64, lines 1-2, with the following amended paragraph:

In summary, construct NMDAR2D contains 88 base pairs of 5' untranslated sequence (nucleotides 397-484 in ~~Sequence ID No. 15~~ Sequence ID No. 57), the complete coding sequence for the NMDAR2D subunit (nucleotides 484-4495 of ~~Sequence ID No. 15~~ Sequence ID No. 57) as well as 200 base pairs of 3' untranslated sequence (nucleotides 4496-4695 of ~~Sequence ID No. 15~~ Sequence ID No. 57). The NMDAR2D subunit encoding sequence is operatively linked to the regulatory elements in pMMTV-T7 for expression in mammalian cells.

Please replace paragraphs on page 80, starting at lines 6-33, with the following amended paragraphs:

~~Sequence ID No. 1A is a 3083 nucleotide sequence encoded by clone NMDA10, comprising nucleotides 320-3402 of Sequence ID No. 1. Thus, Sequence ID No. 1A differs~~  
Clone NMDA10 encodes a 3083 nucleotide sequence comprising nucleotides 320-3402 of Sequence ID No. 1. Thus, this sequence encoded by the NMDA10 clone differs from Sequence ID No. 1 in that it does not contain the 319 5' nucleotides, or the 896 3' nucleotides thereof.

~~Sequence ID No. 1B~~ Sequence ID No. 13 is a 3155 nucleotide sequence encoded by clone NMDA11, comprising nucleotides 1 - 2961, plus nucleotides 3325 - 3518 of Sequence ID No. 1. Thus, ~~Sequence ID No. 1B~~ Sequence ID No. 13 differs from Sequence ID No. 1 by the deletion of 363 nucleotides from the 3' portion thereof (i.e., by the deletion of nucleotides 2962 - 3324 of Sequence ID No. 1), and further by the lack of the 781 terminal 3' nucleotides of Sequence ID No. 1.

~~Sequence ID No. 1C~~ Sequence ID No. 15 is a 2542 nucleotide sequence encoded by clone NMDA7, comprising nucleotides 556 - 831 of Sequence ID No. 1, plus an additional 63 nucleotides (set forth in Sequence ID No. 3) and nucleotides 832 - 984, 1189 - 2961 and 3325 - 3599 of Sequence ID No. 1. Thus, ~~Sequence ID No. 1C~~ Sequence ID No. 15 differs from Sequence ID No. 1 in that it does not contain the 555 5'-most nucleotides thereof, it does not contain the 204 nucleotides set forth as nucleotides 985 - 1188 of Sequence ID No. 1, it does not contain the 363 3' nucleotides set forth as nucleotides 2962 - 3324 of Sequence ID No. 1, and it does not contain the 700 3'-most nucleotides of Sequence ID No. 1, while it does contain an additional 63 nucleotides (Sequence ID No. 3) inserted between nucleotides 831 and 832 of Sequence ID No. 1.

Please replace paragraphs on page 81, starting at lines 1-32 with the following amended paragraphs:

~~Sequence ID No. 1D~~ Sequence ID No. 17 is a 593 nucleotide sequence encoded by clone NMDA3, comprising nucleotides 2617 - 2961, plus nucleotides 4049 - 4298 of Sequence ID No. 1. Thus, ~~Sequence ID No. 1D~~ Sequence ID No. 17 differs from Sequence ID No. 1 in that it does not contain the 2616 5' nucleotides thereof, and by the deletion of 1087 nucleotides from the 3' portion thereof (i.e., by the deletion of nucleotides 2962 - 4048 of Sequence ID No. 1).

~~Sequence ID No. 1E~~ Sequence ID No. 19 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1- $\Delta$ 363, comprising nucleotides 1 - 2961, plus nucleotides 3325 - 4298 of Sequence ID No. 1. Thus, ~~Sequence ID No. 1E~~ Sequence ID No. 19 differs from Sequence ID No. 1 in that it does not contain the 363 nucleotides set forth as nucleotides 2962 - 3324 of Sequence ID No. 1.

~~Sequence ID No. 1F~~ Sequence ID No. 21 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1- $\Delta$ 1087, comprising nucleotides 1 - 2961, plus nucleotides 4049 - 4298 of Sequence ID No. 1. Thus, ~~Sequence ID No. 1F~~ Sequence ID No. 21 differs from Sequence ID No. 1 in that it does not contain the 1087 nucleotides set forth as nucleotides 2962 - 4048 of Sequence ID No. 1.

~~Sequence ID No. 1G~~ Sequence ID No. 23 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63. ~~Sequence ID No. 1G~~ Sequence ID No. 23 is the same as Sequence ID No. 1, further comprising an additional 63 nucleotides (set forth in Sequence ID No. 3) inserted between nucleotides 831 and 832 of Sequence ID No. 1.

~~Sequence ID No. 1H~~ Sequence ID No. 25 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63- $\Delta$ 204. ~~Sequence ID No. 1H~~ Sequence ID No. 25

is the same as Sequence ID No. 1G Sequence ID No. 23, except ~~Sequence ID No. 1H~~ Sequence ID No. 25 does not contain the 204 nucleotides set forth as nucleotides 985 - 1188 of Sequence ID No. 1.

Please replace paragraphs on page 82, starting at lines 3-32 with the following amended paragraphs:

~~Sequence ID No. 1H~~ Sequence ID No. 27 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63- $\Delta$ 204- $\Delta$ 363. ~~Sequence ID No. 1H~~ Sequence ID No. 27 is the same as ~~Sequence ID No. 1H~~ Sequence ID No. 25, except ~~Sequence ID No. 1H~~ Sequence ID No. 27 does not contain the 363 nucleotides set forth as nucleotides 2962 - 3324 of Sequence ID No. 1.

~~Sequence ID No. 1J~~ Sequence ID No. 29 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1- $\Delta$ 204. ~~Sequence ID No. 1J~~ Sequence ID No. 29 is the same as Sequence ID No. 1, except ~~Sequence ID No. 1J~~ Sequence ID No. 29 does not contain the 204 nucleotides set forth as nucleotides 985 - 1188 of Sequence ID No. 1.

~~Sequence ID No. 1K~~ Sequence ID No. 31 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1- $\Delta$ 204- $\Delta$ 363. ~~Sequence ID No. 1K~~ Sequence ID No. 31 differs from Sequence ID No. 1 in that ~~Sequence ID No. 1K~~ Sequence ID No. 31 does not contain the 204 nucleotides set forth as nucleotides 985 - 1188 of Sequence ID No. 1, nor the 363 nucleotides set forth as nucleotides 2962 - 3324 of Sequence ID No. 1.

~~Sequence ID No. 1L~~ Sequence ID No. 33 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1- $\Delta$ 204- $\Delta$ 1087. ~~Sequence ID No. 1L~~ Sequence ID No. 33 differs from Sequence ID No. 1 in that ~~Sequence ID No. 1L~~ Sequence ID No. 33 does not contain the 204 nucleotides set forth as nucleotides 985 - 1188 of Sequence ID No. 1, nor the 1087 nucleotides set forth as nucleotides 2962 - 4048 of Sequence ID No. 1.

~~Sequence ID No. 1M~~ Sequence ID No. 35 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63- $\Delta$ 363. ~~Sequence ID No. 1M~~ Sequence ID No. 35 is the same as Sequence ID No. 1G Sequence ID No. 23 except ~~Sequence ID No. 1M~~ Sequence ID No. 35 does not contain the 363 nucleotides set forth as nucleotides 2962 - 3324 of Sequence ID No. 1.

Please replace paragraphs on page 83, starting at lines 1-11, and 14-28 with the following amended paragraphs:

~~Sequence ID No. 1N~~ Sequence ID No. 37 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63- $\Delta$ 1087. ~~Sequence No. 1N~~ Sequence ID No. 37 is the same as ~~Sequence ID No. 1G~~ Sequence ID No. 23 except ~~Sequence ID No. 1N~~ Sequence

ID No. 37 does not contain the 1087 nucleotides set forth as nucleotides 2962 - 4048 of Sequence ID No. 1.

~~Sequence ID No. 1P~~ Sequence ID No. 39 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR1-I63-Δ204-Δ1087. ~~Sequence ID No. 1P~~ Sequence ID No. 39 is the same as ~~Sequence ID No. 1H~~ Sequence ID No. 25, except ~~Sequence ID No. 1P~~ Sequence ID No. 39 does not contain the 1087 nucleotides set forth as nucleotides 2962 - 4048 of Sequence ID No. 1.

~~Sequence ID No. 2A~~ is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 1A~~.

~~Sequence ID No. 2B~~ Sequence ID No. 14 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1B~~ Sequence ID No. 13.

~~Sequence ID No. 2C~~ Sequence ID No. 16 is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 1C~~ Sequence ID No. 15.

~~Sequence ID No. 2D~~ Sequence ID No. 18 is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 1D~~ Sequence ID No. 17.

~~Sequence ID No. 2E~~ Sequence ID No. 20 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1E~~ Sequence ID No. 19.

Please replace paragraphs on page 84, starting at lines 1-27 with the following amended paragraphs:

~~Sequence ID No. 2F~~ Sequence ID No. 22 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1F~~ Sequence ID No. 21.

~~Sequence ID No. 2G~~ Sequence ID No. 24 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1G~~ Sequence ID No. 23.

~~Sequence ID No. 2H~~ Sequence ID No. 26 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1H~~ Sequence ID No. 25.

~~Sequence ID No. 2I~~ Sequence ID No. 28 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1H~~ Sequence ID No. 27.

~~Sequence ID No. 2J~~ Sequence ID No. 30 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1J~~ Sequence ID No. 29.

~~Sequence ID No. 2K~~ Sequence ID No. 32 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1K~~ Sequence ID No. 31.

~~Sequence ID No. 2L~~ Sequence ID No. 34 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1L~~ Sequence ID No. 33.

~~Sequence ID No. 2M~~ Sequence ID No. 36 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1M~~ Sequence ID No. 35.

~~Sequence ID No. 2N~~ Sequence ID No. 38 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1N~~ Sequence ID No. 37.

Please replace paragraphs on page 85, starting at lines 1-6, and 13-29 with the following amended paragraphs:

~~Sequence ID No. 2P~~ Sequence ID No. 40 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 1P~~ Sequence ID No. 39.

Sequence ID No. 3 is a nucleotide sequence encoding the 63 nucleotide insert present in Sequence ID Nos. 1C, 1G, 1H, 1I, 1M, 1N and 1P 15, 23, 25, 27, 35, 37 and 39.

~~Sequence ID No. 5A~~ Sequence ID No. 41 is a 2026 nucleotide sequence encoded by clone NMDA21, comprising nucleotides 931 - 2350, and 2402 - 3307 of Sequence ID No. 5. Thus, ~~Sequence ID No. 5A~~ Sequence ID No. 41 differs from Sequence ID No. 5 in that it does not contain the 930 5' nucleotides thereof, nor the 51 nucleotides located at position 2351 - 2401 of Sequence ID No. 5, nor the 1061 3' nucleotides of Sequence ID No. 5.

~~Sequence ID No. 5B~~ Sequence ID No. 43 is a 3698 nucleotide sequence encoded by clone NMDA22, comprising nucleotides 367 - 1300 of Sequence ID No. 5, plus an additional 11 nucleotides (set forth as Sequence ID No. 9), and nucleotides 1301 - 1959 and 1975 - 4068 of Sequence ID No. 5. Thus, ~~Sequence ID No. 5B~~ Sequence ID No. 43 differs from Sequence ID

No. 5 by the lack of the 366 5'-most nucleotides, by the insertion of 11 nucleotides between nucleotides 1300 and 1301 of Sequence ID No. 5, and further by the lack of the 15 nucleotides of Sequence ID No. 5 from residue 1960 to residue 1974.

Please replace paragraphs on page 86, starting at lines 1-31 with the following amended paragraphs:

~~Sequence ID No. 5C~~ Sequence ID No. 44 is a 3243 nucleotide sequence encoded by clone NMDA24, comprising nucleotides 861 - 1300 of Sequence ID No. 5, plus an additional 11 nucleotides (Sequence ID No. 9), nucleotides 1301 - 2350 of Sequence ID No. 5, an additional 24 nucleotides (set forth as Sequence ID No. 7) and nucleotides 2351 - 4068 of Sequence ID No. 5. Thus, ~~Sequence ID No. 5C~~ Sequence ID No. 44 differs from Sequence ID No. 5 in that it does not contain the 860 5'-most nucleotides thereof, while it does contain an additional 11 nucleotides (Sequence ID No. 9) inserted between nucleotides 1300 and 1301, plus an additional 24 nucleotides (Sequence ID No. 7) inserted between nucleotides 2350 and 2351 of Sequence ID No. 5.

~~Sequence ID No. 5D is a 3025 nucleotide sequence encoded by clone NMDA26, comprising nucleotides 1 - 3025 of Sequence ID No. 5. Thus, Sequence ID No. 5D differs from~~  
Nucleotides 1-3025 of Sequence ID No. 5 are a 3025 nucleotide sequence encoded by clone NMDA26. Thus, this sequence differs from sequence ID No. 5 in that it does not contain the 1043 3'-terminal nucleotides thereof.

~~Sequence ID No. 5E~~ Sequence ID No. 45 is a nucleotide sequence encoding human NMDA receptor subunit pCMV-26-*ScaI*-24, which differs from Sequence ID No. 5 only in the insertion of 24 nucleotides (Sequence ID No. 7) between nucleotides 2350 and 2351 of Sequence ID No. 5.

~~Sequence ID No. 5F~~ Sequence ID No. 47 is a nucleotide sequence encoding human NMDA receptor subunit pCMV-26-*ScaI*-22, which differs from Sequence ID No. 5 only in the deletion of nucleotides 1960 - 1974 of Sequence ID No. 5.

~~Sequence ID No. 5G~~ Sequence ID No. 49 is a nucleotide sequence encoding human NMDA receptor subunit pCMV-26-*ScaI*-21-*NotI*-24, which differs from Sequence ID No. 5 only in the deletion of nucleotides 2351 - 2401 of Sequence ID No. 5.

Please replace page 87, paragraphs starting on lines 1-13, and 16-30 with the following amended paragraphs:

~~Sequence ID No. 5H~~ Sequence ID No. 51 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR2C- $\Delta$ 15-I24. ~~Sequence ID No. 5H~~ Sequence ID No. 51 is the same as ~~Sequence ID No. 5F~~ Sequence ID No. 47, except ~~Sequence ID No. 5H~~

Sequence ID No. 51 further contains the 24 nucleotide insert set forth in Sequence ID No. 7, positioned between nucleotides 2350 and 2351 of Sequence ID No. 5.

~~Sequence ID No. 5I~~ Sequence ID No. 53 is a nucleotide sequence encoding human NMDA receptor subunit NMDAR2C-Δ15-Δ51. ~~Sequence ID No. 5I~~ Sequence ID No. 53 is the same as ~~Sequence ID No. 5G~~ Sequence ID No. 49, except ~~Sequence ID No. 5I~~ Sequence ID No. 53 does not contain the 15 nucleotides set forth as nucleotides 1960 - 1974 of Sequence ID No. 5.

~~Sequence ID No. 6A~~ Sequence ID No. 42 is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 5A~~ Sequence ID No. 41.

The ~~Sequence ID No. 6B~~ is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 5B~~ Sequence ID No. 43 is set forth in Sequence ID No. 43.

~~Sequence ID No. 6C~~ is the The amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 5C~~ Sequence ID No. 44 is as set forth in SEQ ID No. 44.

~~Sequence ID No. 6D~~ is the amino acid sequence of a portion of an NMDA receptor subunit as encoded by the nucleotide sequence of ~~Sequence ID No. 5D~~.

~~Sequence ID No. 6E~~ Sequence ID No. 46 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 5E~~ Sequence ID No. 45.

Please replace paragraphs on page 88, starting at lines 1- 15, and 23-25 with the following amended paragraphs:

~~Sequence ID No. 6F~~ Sequence ID No. 48 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 5F~~ Sequence ID No. 47.

~~Sequence ID No. 6G~~ Sequence ID No. 50 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 5G~~ Sequence ID No. 49.

~~Sequence ID No. 6H~~ Sequence ID No. 52 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 5H~~ Sequence ID No. 51.

~~Sequence ID No. 61~~ Sequence ID No. 54 is the amino acid sequence of an NMDA receptor subunit encoded by the nucleotide sequence of ~~Sequence ID No. 51~~ Sequence ID No. 53.

Sequence ID No. 7 is a nucleotide sequence encoding the 24 nucleotide insert present in Sequence ID Nos. ~~5C, 5E and 5H~~ 44, 45 and 51.

Sequence ID No. 9 is a nucleotide sequence encoding the 11 nucleotide insert present in Sequence ID Nos. ~~5B and 5C~~ 43 and 44.

Please replace page 89, lines 8-25 with the following amended page:

~~Sequence ID No. 13~~ Sequence ID No. 55 is a nucleotide sequence of a clone encoding a human N-methyl-D-aspartate (NMDA) receptor subunit, NMDAR2B.

~~Sequence ID No. 14~~ Sequence ID No. 56 is the amino acid sequence of the NMDA receptor subunit set forth in ~~Sequence ID No. 13~~ Sequence ID No. 55.

~~Sequence ID No. 15~~ Sequence ID No. 57 is a nucleotide sequence of a clone encoding a human N-methyl-D-aspartate (NMDA) receptor subunit, NMDAR2D./

~~Sequence ID No. 16~~ Sequence ID No. 58 is the amino acid sequence of the NMDA receptor subunit set forth in ~~Sequence ID No. 15~~ Sequence ID No. 57.

~~Sequence ID Nos. 17-20~~ Sequence ID Nos. 59-62 are four synthetic oligonucleotides used in the preparation of an NMDAR2C clone (pCMV-26-NotI-24-GCMOD) having reduced GC nucleotide content between nucleotides 2957 and 3166.

~~Sequence ID No. 21~~ Sequence ID No. 63 is the nucleotide sequence of the 195 base pair insert of NMDAR2C clone pCMV-26-NotI-24-GCMOD (replacing nucleotides 2966-3160 of Sequence ID No. 5).